



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

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OFFICE OF
ENVIRONMENTAL CLEANUP

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ACTION MEMORANDUM

SUBJECT: Action Memorandum for a Non-Time-Critical Removal Action at the Little Squalicum Creek Area of The Oeser Company Superfund Site, Bellingham, Washington

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SITE ID: CERCLIS ID - WAD008957243

I. PURPOSE

The purpose of this Action Memorandum is to request and document the U.S. Environmental Protection Agency, Region 10's (EPA) approval of the selected non-time-critical removal action described herein for the Little Squalicum Creek Area (LSCA) of The Oeser Company Superfund Site, Bellingham, Whatcom County, Washington (Figure 1). This removal action will address contaminated soil and sediment in the LSCA. The LSCA lies within the Lower Squalicum Park which consists of approximately 21 publicly-owned acres in Bellingham, Washington (Figure 2). Approximately five acres will be addressed by the scope of this removal action. The exact number of acreage to be addressed will be determined during the removal design phase.



Within the LSCA, the chemicals of concern (COCs) for human health in the contaminated soil are carcinogenic polycyclic aromatic hydrocarbons (cPAHs). The COCs for ecologic risk in sediment and soil include: total PAHs (tPAHs), pentachlorophenol (PCP), and dioxins/furans. Dioxins/furans are found in impurities of PCP which was released from the Oeser facility, and thus have been found to be co-located with PCP. Dioxins/furans also exist widely in the environment as a result of combustion of wood and other sources and could have been released to the LSCA via storm drains and other sources which are not related to the Oeser facility.

Contaminated soil and sediments with concentrations of COCs above cleanup levels will be excavated, consolidated and capped, or removed. Excavated areas will be backfilled with clean material and revegetated where necessary. Pre-removal and post removal confirmatory sampling will be conducted.

Consistent with the Remedial Action Objectives for the Oeser site, the removal action objectives for the LSCA are as follows:

- Prevent or reduce human exposure (through direct contact, inhalation of dust, incidental ingestion of soil, and dermal contact) with the contaminated soil that exceeds cleanup levels;
- Prevent or reduce risks to plants, soil invertebrates, insectivorous wildlife and benthos from exposure (through ingestion, and dermal contact) to contaminated soil and sediment that exceed cleanup levels at the LSCA;
- Prevent or reduce potential migration of COCs above cleanup levels in soil/sediment at the LSCA to adjacent surface water via surface runoff, erosion, and wind dispersion to protect human health and ecological receptors; and
- Prevent or reduce potential migration of COCs above cleanup levels in soil/sediment at the LSCA to groundwater and eventual potential recharge to surface water to protect human health and ecological receptors in surface water.

By approval of this memorandum, EPA determines that: 1) the conditions at the Site may present an imminent and substantial endangerment to public health, or welfare or the environment; and 2) the site conditions meet the criteria of the National Contingency Plan (NCP), 40 CFR § 300.415, for a removal action. The removal action is being conducted to address risk to the public and the environment from uncontrolled hazardous substances, pollutants and contaminants at the LSCA. An administrative record has been prepared for this removal action.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

This is a non-time-critical removal action at the LSCA within the boundaries of the Oeser Superfund Site in Bellingham, WA (see Figure 2). The Oeser Site was listed on the National Priorities List (NPL), pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9605, on October 27, 1997. The CERCLIS ID number is WA008957243.

The LSCA is south of the Oeser Company property. The LSCA is located on the northeast shore of Bellingham Bay and is in Whatcom County. Parts of the LSCA are in the City of Bellingham. The City of Bellingham owns part of the LSCA and the County owns other parts of the LSCA. The City leases the County's portion of the LSCA for improvement and management as a park. The area being developed by the City is called Little Squalicum Park and comprises 21 acres. Little Squalicum Creek is approximately a mile long and runs through the park down to Bellingham Bay.

Soil, sediment, surface water, and groundwater at the LSCA have been found to contain chemicals that are associated with wood-treating operations. The Oeser Company (Oeser), an active wood-treating facility that has operated since the 1940s, has been identified as a source of some of these contaminants within the LSCA. Oeser-related contaminants have historically been discharged to the LSC Site via Oeser's stormwater drainage system. At the time that the Oeser Site Record of Decision (ROD) (EPA 2003) was prepared, EPA determined that the Oeser-related contaminants within the LSCA did not pose an unacceptable risk to human or ecological receptors, and that cleanup of Oeser-related contaminants within the LSCA was not warranted under CERCLA. Since that time, based on additional data, the EPA has determined that Oeser-related contamination within the LSCA is subject to cleanup action under CERCLA. There are also other sources of contamination at the LSCA, including non-Oeser stormwater runoff and possible spills and dumping.

Ecology entered into a Model Toxics Control Act (MTCA) Consent Order with the City of Bellingham to address contamination from all sources within the entire park. The City conducted a Remedial Investigation (RI) of the park from 2005 through 2008. A portion of the RI work was paid for by an EPA Brownfields grant. A Draft Final RI report was produced by the City in 2008 under the Ecology Order. Ecology terminated the Order in January 2009. However, only a portion of the park is being addressed by this CERCLA removal action. EPA is addressing only those areas that we have determined are sufficiently contaminated to trigger CERCLA action and that contain Oeser-related contaminants.

The Oeser Company has completed remedial action activities on the Oeser facility property which is upgradient from the LSCA. That remedial action included source control via asphalt and gravel caps along with stormwater controls. These activities were conducted pursuant to a CERCLA Consent Decree. EPA approved the remedial action completion for the Oeser facility work on March 3, 2010.

1. Removal Site Evaluation

There is an operating railroad line between the Oeser property and Little Squalicum Creek. Little Squalicum Creek which functions primarily as a storm water drainage ditch (over 90% of average annual water flow) is located at the base of a ravine. The steep ravine side slopes are thickly vegetated by blackberry and alder and are relatively undisturbed. Some spoils piles are located along the creek which appear to be excavated material from the creek bed.

The City of Bellingham and Whatcom County use the Little Squalicum Creek and ravine as an outlet for their storm drain system. Runoff from the Birchwood neighborhood, including Oeser, is released to the creek via the Oeser and Birchwood outfalls. The Marine Drive outfall collects runoff from areas south and west of Oeser and flows into the creek above the Marine Drive Bridge. Although the majority of the water in the creek is from stormwater drainage, the creek is also fed by local springs. The upper portion of the creek does not support fish, although it does support aquatic insects and a benthic invertebrate community. Salmon fingerlings have been periodically spotted in the lower reaches of the creek. In addition, there are several identified wetlands within the LSCA.

A second active rail line runs parallel to Bellingham Bay about 100 feet from the shore. A rail line existed along the west side of the creek in the past but has been removed. The old rail bed has been renovated and now serves as a footpath. A second trail along the east side of the ravine runs from the nearby college to the Bay. The LSCA is surrounded by mixed use properties, including the college, residences and industry.

A portion of the property in the ravine was acquired by the Eiford family and the upland portion was obtained by the Bellingham School District in 1955, which subsequently deeded the land in 1993 to the Washington State Board for Community Colleges and Technical Colleges. Bellingham Technical College (BTC) is currently located on this 21-acre site.

In 1977, the City constructed an underground stormwater pipeline through the upper part of the ravine. Stormwater from approximately 3 square miles of the Birchwood neighborhood, including the BTC parking lot, is conveyed through the 36-inch underground pipeline and discharged into the creek. Although water is diverted directly into the Birchwood neighborhood storm drain during larger rainstorms (defined as being larger than 6-month storms), reportedly most BTC runoff (approximately 90 %) flows through the composted leaf media before discharging into Little Squalicum Creek (Integral 2008). It is not known whether the composted leaf media is monitored or maintained.

The City of Bellingham owns 8.7 acres of Little Squalicum Park and leases 12.3 acres of County-owned property at the LSCA. Currently, a lease agreement between the City Parks and Recreation Department and Whatcom County Parks Department stipulates that the City will manage and operate the area as a park for 35 years (to about 2025) with a renewal provision for another 35 years.

The Oeser Cedar Company (currently known as The Oeser Company) purchased the nearby U&I property in 1943 and has continuously manufactured poles for utility companies

since that date. In records dating back to 1953, the process included segregating poles by length and class, incising some or all of the poles, and subjecting them to "oil treatment" using creosote. Finished poles were shipped offsite by rail on tracks adjacent to the OPC plant spur. In the mid 1950s, the company also started treating wood using 5 percent PCP in an oil-based solvent. Oeser stopped using creosote to treat wood in the early 1980s; however, PCP treatment continues to be utilized at the facility.

The Oeser Company has discharged processed wastewater and/or contaminated stormwater to the creek since operations began in the late 1940s. The water enters an underground stormwater line that crosses Oeser property and then discharges into the creek. Stormwater flows in the Oeser/Birchwood culvert originate in a portion of the residential Birchwood/Alderwood neighborhood lying northeast of the Oeser plant. The Oeser/Birchwood culvert and the flows received from above the plant follow an old creek channel that was apparently filled during construction of the sugar beet plant or for the site's conversion by The Oeser Company. This Oeser/Birchwood neighborhood drainage enters the creek adjacent to the outfall from the BTC/Birchwood neighborhood drainage to the east. In addition to water, discharges from Oeser have historically been known to contain contaminants such as creosote, PCP, dioxins/furans (associated with PCP), diesel fuels and related oil products. Oeser has long had a National Pollutant Discharge Elimination System Waste Discharge Permit and that permit currently allows PCP and petroleum hydrocarbons in effluent discharged to local stormwater.

Stormwater drainage from the Birchwood neighborhood (via the Oeser/Birchwood and Bellingham Technical College/Birchwood drainages as well as several small, localized stormwater outfalls) is also likely a source of petroleum hydrocarbons and heavy metals to the Creek. The petroleum hydrocarbons and heavy metals in this stormwater are from motor vehicle and mixed commercial/residential use throughout this drainage area.

2. Physical Location

The LSCA consists of approximately 21 publicly owned acres located next to the Birchwood and Alderwood neighborhoods of northeast Bellingham and its Urban Growth Site. The park is bordered by Bellingham Bay, the BNSF mainline, several homes and Bellingham Technical College (BTC) to the south and east, and by several residences, an interim BTC building and the Oeser facility on the north and west.

The property to the north/northwest of the trail and adjacent to Marine Drive (on the OPC Pier Railroad Parcel, which runs just west of Little Squalicum Creek) is zoned for light impact industrial use. A portion of this area was recently developed into a parking lot by the City to provide improved access to the park and area trails. The rest of the property is zoned for recreational open space.

The creek corridor and the park are currently used for recreational activities such as walking, bicycling, play, and birding. The Site provides open space, wildlife habitat and stormwater conveyance services. Public investments have currently been limited to improvements involving two major trails. One of these trails passes through the park on the

OPC pier railroad and the other on the old road between Lindbergh Avenue and the BNSF Bridge.

The City has developed a Master Plan for the park which calls for enhancing the recreational activities in the park by constructing trails, water features and park amenities, and by realigning and day-lighting Little Squalicum Creek and stormwater flows within the park. The Master Plan also calls for enhancing the fish and wildlife habitat, including construction of wetlands, ponds, and channels to increase water storage and water release periods.

3. Site Characteristics/Conceptual Site Model

This removal action addresses contaminated soil, sediment, groundwater, and surface water associated with stormwater drainage and with historical releases from wood treatment activities at Oeser. Dioxins/furans from Oeser are found as impurities in PCP product and are therefore generally collocated with PCP in contaminated soil and sediment at the LSCA. As such, all known locations of dioxins/furans within the LSCA removal action area that are above the action level will be addressed by excavating and/or covering soils above the action levels for PCP and PAHs. The approximate boundaries of the removal action are shown in Figure 3. During design, some adjustments may be made to the boundary based on site conditions. Contaminants detected, spatial distribution and concentrations are described below, and site exposure and associated risk are described in Section III.

a. Release Mechanisms/Transport Mechanisms

Contaminants of concern have historically been released from the Oeser facility in stormwater and process wastewater mixed with stormwater via an outfall to the creek (Oeser continues to discharge contaminants of concern in stormwater discharges under an NPDES permit). Discharged stormwater and process wastewater infiltrated to the groundwater and contaminated soil and sediment were redistributed as the creek was rerouted and various activities, including historic gravel mining, occurred within the Site. There are also non-Oeser sources of the contaminants of concern that are and have been transported to the LSCA in a variety of ways, including stormwater runoff. The discontinuous occurrence of non-aqueous phase liquid (NAPL) or sheen in discrete areas of the site occurs primarily as isolated globules, and the likely mode of emplacement of contamination discussed above, suggests that little or no mobile NAPL exists at the Site.

b. Exposure Media/Secondary Sources

The primary media impacted by releases are soil and sediment within and adjacent to the present and historical channels of Little Squalicum Creek. Several contaminated areas further from the channels may have been impacted by other sources and/or redistribution of contaminated creek sediment and soils. Partitioning and leaching/infiltration appear to have caused secondary media, such as surface water and groundwater, to become impacted by COCs. However, existing groundwater data indicate that groundwater contamination by the COCs appears to be limited to localized areas in close proximity to the creek channel or other areas exhibiting soil contamination. No continuous groundwater plume is evident. Furthermore,

existing data indicate that COCs were either not detected or were detected at low concentrations in surface water samples collected at locations along the creek within and downgradient of the gaining reach, suggesting that significant migration of COCs from contaminated soils and associated groundwater to surface water in Little Squalicum Creek is not occurring. It should be noted that, as discussed in Section 2.6 of the EE/CA, much of the water within Little Squalicum Creek originates from stormwater runoff entering the creek through the Birchwood/Oeser storm drain, the Birchwood/BTC storm drain, and the Marine Drive storm drain outfalls. Stormwater from all of these sources are likely historical and ongoing sources of COCs in the creek.

c. Exposure Routes/Receptors

Human users of the LSCA may be exposed to chemicals of potential concern (COPCs) in environmental media in a variety of ways, including inhalation, dermal contact, and ingestion. However, given the tendency of the contaminants to sorb to solids, contaminant distributions in Site media (limited mainly to solids in the present and historical creek channel and adjacent soils), and recreational use of the Site, dermal contact with contaminated sediment/soil and ingestion of contaminated sediment/soil by recreational users appear to be the primary routes for human exposure. Ecological receptors at the LSCA may be similarly exposed, although bioaccumulation also plays a role in ecological exposure. The ecological receptors evaluated were vegetation, soil invertebrates, benthic invertebrates, insectivorous wildlife and birds, specifically the robin and the shrew

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Human health risks are summarized in Section 4.1 and evaluated in Appendix C of the EE/CA. Risks to ecological receptors are summarized in Section 4.2 and evaluated in Appendix C of the EE/CA.

The primary contaminants of concern include PCP and total and carcinogenic PAHs (e.g., benzo(a)pyrene) which are hazardous substances or pollutants or contaminants as defined by Sections 101 (14) and 101 (33) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. § 9601 (14) and (33) that were detected above levels deemed acceptable based on site-specific human health and ecological risk assessments and ARARs. Low levels of dioxins and furans were also detected in a few LSCA samples; however, as was found during the investigations and cleanup of the Oeser facility and during the investigations of the LSCA, these contaminants are generally co-located with the PCP. Therefore, EPA has determined that dioxins and furans which could be associated with PCP releases from the Oeser facility will be addressed by the response actions being taken to address the LSCA COCs.

The table below lists the maximum concentrations of COCs and their associated human health risk level:

Contaminant	Media	Maximum Concentration	Human Health Risk (Recreational User)
cPAHs	Subsurface soil	510 mg/kg	2.76E ⁻⁵ (cancer risk)
	Surface water	140 ug/l	6.52E ⁻⁵ (cancer risk)
TPAHs	Subsurface soil	800 mg/kg	4.01E ⁻¹ (non-cancer risk)
PCP	Subsurface soil	6.4 mg/kg	1.94E ⁻⁵ (non-cancer risk)
Dioxin/Furans	Surface soil	0.00137 mg/kg	4.69E ⁻⁶ (cancer risk)

cPAHs = carcinogenic PAHs

TPAHs = total PAHs

mg/kg = milligram per kilogram

ug/l = microgram per liter

EPA evaluated the potential risk or hazard posed to recreational receptors exposed to contaminants in surface soil, subsurface soil, sediment, and surface water at the LSCA. Using maximum detected site concentrations, the cancer risk for the site as a whole is 8.0E-4, above the EPA threshold of 1.0E-4. Non-cancer hazard quotients were below the EPA benchmark of 1.0.

Creosote and PCP related contaminants are also found in sediments in the upper creek and lower creek areas. Contaminated sediment is more extensive in the upper creek area and associated with groundwater discharging to this area of the creek. The extent of contamination is mostly localized in the lower creek, generally confined to surface sediments and bank soils transported from areas upstream.

The presence of hazardous substances at the LSCA, or the past, present, or potential migration of hazardous substances currently located at or emanating from the LSCA, constitute actual and/or threatened "releases" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22). Section III of this Action Memorandum provides a discussion of potential exposure and risk to Site receptors and Section V includes a table of Contaminants of Concern and cleanup levels.

5. NPL Status

The LSCA is located within the boundaries of the Oeser Superfund Site, which was listed on the NPL on October 27, 1997.

6. Maps, pictures and other graphic representations

Relevant figures are attached to this memorandum.

B. Other Actions to Date

1. Previous Actions

There have been no previous CERCLA removal actions or cleanup activities in the LSCA. However, there have been several previous investigations in the LSCA which are summarized in the EE/CA.

The Oeser Company has completed construction of the remedial action and source control activities for the upgradient Oeser facility. The Oeser Company has also completed closure activities for waste management units on the Oeser facility which are regulated under the Resource Conservation and Recovery Act (RCRA).

The City of Bellingham has submitted a Draft Final RI Report for the park. The RI was conducted pursuant to a Consent Order with Ecology. The Ecology Consent Order was terminated in January 2009.

2. Current Activities

There are no other removal actions associated with the LSCA. Operation, maintenance and monitoring activities of the remedial action are ongoing at the upgradient Oeser facility. The City plans on developing the park once funding becomes available and after completion of the non-time-critical removal action.

C. State and Local Authorities

1. State and local actions to date

The Oeser Superfund Site is an EPA lead site. EPA is the lead for the non-time-critical removal action at the LSCA. Ecology has reviewed and commented on the draft EE/CA and other documents associated with the removal action. Ecology has also participated in stakeholder meetings on the LSCA and on the park. As a landowner of the LSCA, the City of Bellingham is a Potentially Responsible Party and has actively participated in meetings concerning the LSC Area. The City has also commented on the Draft EE/CA and other documents associated with the LSCA. The City also conducted an RI of the park under State oversight (pursuant to the Ecology Consent Order). Other stakeholders that were provided an opportunity to participate include Whatcom County and the Lummi Nation.

2. Potential for continued State/local response

The removal action at the LSCA will be conducted under CERCLA authority. Coordination efforts with state and local authorities will continue throughout the project.

Other areas of the park (those not contaminated by Oeser-related contaminants) that may need to be addressed will be handled by the City and the State.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

As required by § 300.415(b)(2)(i) of the NCP, actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants at the LSCA are documented in Sections A and B below.

A baseline human health risk assessment and ecological risk assessment were conducted for the Oeser Site as part of the Oeser Site RI in 2002. These risk assessments included the LSCA. Based on these assessments, EPA determined that cleanup action at the LSCA was not warranted. This no-action determination for the LSCA was documented in the September 2003 CERCLA Record of Decision for the Oeser Site. Subsequent investigations at the LSCA by Ecology and the City provided additional data regarding contamination in the LSCA.

Consistent with EPA guidance for conducting an EE/CA, a streamlined risk evaluation was conducted for the LSCA (Section 4 of the EE/CA). The streamlined risk evaluation addresses human health and ecological risk from exposure to contaminated soil, sediments and groundwater in the absence of a removal action.

A. Threats to Public Health or Welfare

At the LSCA, potential exposure pathways for human health risks include direct contact with, inhalation from, or ingestion of contaminated surface and subsurface soil or sediment by recreational users. The contaminants of concern for soil and sediment are PCP and PAHs. The risk evaluation found that when exposure to maximum concentrations at the LSCA as a whole was evaluated, the potential cumulative risk to the adolescent recreational user from exposure primarily to cPAHs in LSCA soils approximated or exceeded the EPA cancer threshold of 1 in 10,000 (10⁻⁴).

Based on the concentrations detected in soil and sediments at the LSCA and the potential direct and indirect exposure pathways identified, EPA has determined that a removal action is required to mitigate impacts to public health, or welfare, or the environment. The removal action will eliminate the exposure pathways to PCP, PAHs and co-located dioxins/furans in soil and sediments within the removal area, which will lower unacceptable risks to users of the LSCA.

B. Threats to the Environment

The ecological risk evaluation concluded that levels of soil and sediment contamination at the LSCA are great enough to pose a risk to plants, soil invertebrates, insectivorous wildlife, and benthos, and that TPAHs are the principal chemicals of concern. Potential risks from PCP and dioxins/furans in soil and sediment were found to be much lower than those due to PAHs for all receptors evaluated (plants, soil invertebrates, insectivorous wildlife, and benthos).

Insectivorous mammals (e.g., shrew) using the LSCA may be impacted by total PAHs in soil in the historic and upper creek areas and by dioxins/furans in soil in the historic, upper, and lower creek areas.

Two Federal listed species, the bald eagle (*Haliaeetus leucocephalus*) and the bull trout (*Salvelinus confluentus*), may be present in the site vicinity. In addition, five species of concern may be present in the site vicinity, including the Pacific lamprey (*Entosphenus tridentata*), river lamprey (*Lampetera ayresi*), long-eared myotis (*Myotis evotis*; a bat), long-legged myotis (*Myotis volans*; a bat), and peregrine falcon (*Falco peregrinus*). Occurrence of these species have been documented at the LSCA.

Use of Little Squalicum Creek by fish is thought to be limited, though salmon fingerlings have been spotted periodically in Little Squalicum Creek's lower reaches.

Based on the PCP, PAH and dioxin/furan concentrations detected in soil and sediments at the LSCA, and known or potential ecological pathways identified, EPA has determined that a removal action will reduce potential impacts to the environment.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

In general, the contaminated soil and sediment with the highest concentrations of PCP, PAHs, and dioxins/furans will be removed, and remaining soil and sediments, which have lower concentrations, will be consolidated and covered with clean backfill material. Through an evaluation of effectiveness, implementability, and costs, along with input from the public, a modification of Alternative 4, which will include some elements of Alternatives 5 and 2 as described in the EE/CA, was selected as the removal alternative (Figure 3).

The LSCA is part of Little Squalicum Park. The park is used for recreational purposes and thus the human health cleanup levels for the LSCA are based on an adolescent recreational use scenario. Conservative cleanup levels which are protective of ecological receptors at the LSCA are based on screening levels and background concentrations of PCP, PAHs, and dioxins/furans.

1. Proposed action description

As described further below, the following response actions will be implemented to achieve the Removal Action Objectives for the LSCA, which are consistent with the Remedial Action Objectives for the Oeser site as a whole, through this removal action: pre-removal and post-removal confirmatory sampling; removal of contaminated soil and sediment for consolidation and containment on-Site (some material may be moved to the Oeser Company property and/or disposed off site); re-routing of the creek so that it flows through a portion of the

historical creek channel where the contaminated soil will have been removed; and institutional controls.

- Removal and Consolidation With Backfilling and/or Containment

Approximately 10,000 cubic yards of contaminated material will be excavated from the existing creek channel, the historical creek channel, and within what is referred to as the “paddle area” (Figure 3). It is expected that the majority of the excavated material will be from the historical creek channel and the paddle area. Prior to excavation of contaminated material, the removal action areas would be cleared and grubbed using a bulldozer or other suitable equipment. Contaminated soil/sediment above cleanup levels will be removed in lifts until confirmation sampling shows cleanup goals have been achieved or a depth of six feet is reached. Contaminated soil deeper than 6 feet is not expected to be removed because it does not currently pose an unacceptable risk to ecological receptors or humans. However, if contamination is visually apparent and accessible below 6 feet, additional material may be removed.

It is anticipated that all or most of the excavated material will be consolidated and contained on the Oeser plant. Some material may be placed within the upper reach of the existing creek channel (repository area) prior to backfilling. The function of the backfill will be to provide a physical barrier to protect users of the park from exposure to any residual contamination. Soil/sediment which meets RCRA requirements for Subtitle C disposal will be transported to a landfill that meets ARARs. None of the material known or suspected to be found in the LSCA area exceeds levels that would require treatment prior to disposal or on-site consolidation.

- Creek Rerouting

The existing creek will be re-routed from the upper portion of the existing creek to the lower historical creek channel (Figure 3). Approximately 700 linear feet of the existing upper creek will be permanently impacted while implementing the removal action. However, approximately 1,300 linear feet of new and historical channel will be constructed that will have greater functions and values than the existing channel. The creek will not be rerouted through the City’s proposed estuary area in the southern portion of the LSCA.

- Bellingham Technical College (BTC) Outfall Rerouting

The BTC Outfall pipe will be shortened so that it no longer enters the creek near the Birchwood/Oeser Outfall, but instead would enter the creek just south of the existing BTC trail.

- Restoration of the Removal Action Areas

The excavated areas will be backfilled with clean material. It is anticipated that the backfill material may come from clean soil excavated as part of the construction project to create a new parking lot at the adjacent Bellingham Technical College, or from material used to create the new upper creek channel. Sampling will be conducted prior to use of backfill to confirm it is below any action levels for the cleanup action. Impacted wetlands will be restored or mitigated.

A wetland delineation will be performed prior to construction, and the details of wetland restoration/mitigation will be determined during the engineering design process.

- Repository Areas

Two repositories – one located at the Oeser plant and one within the upper reach of the existing Little Squalicum Creek – will be constructed to consolidate the contaminated material as described below. The preferred option is to place the contaminated material on the Oeser property.

Oeser Repository: This repository will be excavated in the western part of the Oeser property. The contaminated material excavated from the LSCA will be covered with 6 inches of clean gravel. Institutional controls including stormwater controls, monitoring and maintenance of this repository by the Oeser Company will be required.

Little Squalicum Creek: The upper reach of the existing Little Squalicum Creek (upstream from the Marine Drive Bridge) may be converted into a soil repository. The stream will be diverted to the historical channel in this area. After excavation of the contaminated material within the upper reach of the creek channel, clean fill will be placed in the excavation to raise the level of the channel above the 100-year floodplain. Contaminated material will be placed above the clean fill and covered with an 8-inch gravel layer and 2 feet of clean topsoil. Upon completion, the repository will be seeded and mulched. Institutional controls to include monitoring and maintenance of the soil cover will be implemented.

- Sampling

To better delineate the extent of contamination in the excavation areas, pre-removal soil sampling will be performed. Based on the preliminary removal design, the “paddle area” in the north central portion of the LSCA (Figure 3) presents the greatest uncertainty regarding soil contaminant levels. As such, this area presents the greatest uncertainty regarding the volumes of soil to be excavated and the methods and locations of consolidation or disposal. Therefore pre-excavation sampling will focus on this area.

Post-removal confirmatory sampling for COCs will also be performed in and around excavations to ensure cleanup levels and/or the six-foot excavation depth limit depth have been attained throughout the LSCA.

- Institutional Controls

Wherever material containing COCs above the cleanup levels established for protection of human health and the environment is left in place, clean fill will be used as a cover to create a physical barrier and the area(s) will be subject to institutional controls (ICs). The objectives of the ICs are to protect the integrity of the cover and guide how to handle any soils exposed in the future to protect against unacceptable human exposures and/or migration of contaminants from the covered areas to other areas and/or media. Annual inspections and maintenance (as needed) of the covered areas will also be conducted.

2. Contribution to remedial performance

The LSCA is located within the boundaries of the Oeser Superfund Site. Completion of all remedial actions for the Oeser Superfund Site will be accomplished upon completion of the LSCA non-time-critical removal action. In addition, the removal action is designed to immediately address contaminated soil and sediment within the LSCA and reduce exposures to recreational users and ecological receptors so that the City of Bellingham can proceed with further cleanup and development of Little Squalicum Park should they choose.

3. Description of alternative technologies

Candidate technologies for soil, sediment, and surface water remediation were identified and screened prior to developing alternatives for further engineering analysis. General categories of removal action technologies considered at the screening stage included: no action, institutional controls, surface water controls, stabilization/containment, and excavation and removal to both onsite and offsite locations. Each of these candidate technologies were evaluated based on effectiveness, implementability, and cost. Technologies were eliminated from further consideration due to low expected technical feasibility or effectiveness. Technologies that were not cost-effective relative to other equally-protective options were also not retained. Technologies determined to be potentially applicable to the LSCA removal action included institutional controls, surface water controls, containment, removal, and disposal.

4. Engineering Evaluation/Cost Analysis (EE/CA)

EPA prepared an EE/CA Approval Memorandum (December 21, 2009) for this removal action. EPA, with contractor assistance, then prepared the EE/CA which documents the development and evaluation of removal action alternatives and discusses the rationale for the recommended alternative. A 30-day public comment period on the EE/CA was held from March 18, 2010, to April 19, 2010. EPA prepared a response to public comments (Attachment A).

5. Applicable or Relevant and Appropriate Requirements (ARARs)

For on-site activities, all state and federal ARARs will be complied with. A comprehensive list of ARARs for the removal action is provided in Table 4 of the EE/CA and the final ARARs list is included herein as Attachment B. Primary federal ARARs for the removal are the Clean Water Act Sections 401 and 404; and RCRA requirements. Primary state ARARs include: a) the Washington State Model Toxics and Control Act (MTCA) requirement that cleanup levels be established for unrestricted use at 1×10^{-6} for individual carcinogens and total excess cancer risk does not exceed 1×10^{-5} , and for noncarcinogens at a Hazard Index of 1 or less, and that where the cleanup is protective but cannot attain those levels throughout the site, Institutional Controls will be put into place; and b) dangerous waste regulations.

Off-site activities will comply with all applicable local, state, and federal laws, including the Off-Site Disposal Rule (40 CFR § 300.440).

6. Cleanup Levels

The table below lists cleanup levels for the LSCA and the basis for those cleanup levels.

LSCA Contaminants of Concern and Cleanup Levels

Contaminant	Media	Maximum Concentration	Cleanup Level
Carcinogenic PAHs ^a	Soil	510 mg/kg	4.5 mg/kg
Dioxins/Furans ^b	Soil/Sediment	0.00137 mg/kg	.000012 mg/kg
Total PAHs ^c	Soil	800 mg/kg	3.6 mg/kg
Pentachlorophenol (PCP) ^d	Soil/Sediment	6.4 mg/kg	3.0 mg/kg

a = Clean up levels for cPAHs are based on benzo(a)pyrene and risk at this cleanup level is 1×10^{-6} .

b = The soil cleanup level for dioxins/furans is based on a background level calculated by looking at the 90th percentile from 20 soil samples taken from the City of Bellingham during the Oeser remedial investigation.

c = The cleanup level for Total PAHs is based on background soil concentrations.

d = The cleanup level for PCP is based on a site-specific calculation in which the risk at this cleanup level is 1×10^{-6} for protection of humans and ecological receptors

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

Sections of the MTCA, specifically WAC 173-340-740 which establishes soil cleanup standards, are applicable for this response action. In this case, site-specific cleanup levels were developed based on an adolescent recreational use scenario for human health and for protection of ecological receptors, and the more stringent of the two was selected as the cleanup level. For Total PAHs, a site-specific area background level was determined and selected as the cleanup level to be protective of human health and the environment. For cPAHs, the cleanup level is based on protection of human health. For PCP, there are soil screening levels but not applicable standards, so the cleanup level is based on protection of human health (1×10^{-6}) and ecological protection (for plants and birds). For dioxin/furans, the cleanup level is based on a background level which has been determined to be protective of ecological receptors. Note that the marine sediment standards were determined not to be relevant and appropriate for the limited amount of freshwater sediments in the creek bed.

Cleanup in the LSCA is driven by potential human health risk from exposure to cPAHs and PCP in soils; and by potential ecological risk from exposure to PAHs, PCP, and dioxins and furans in surface soils. Because of the greater number and better distribution of PAH and PCP data and because dioxins and furans, where detected, were in all but one instance co-located with PAHs and/or PCP, the extent of the removal action will be guided by the PAH and PCP cleanup levels. Because dioxins and furans are co-located with the COCs, it follows that the removal action will also address dioxin and furan contamination. In addition, the cleanup level for dioxins and furans in soils in the LSCA has been determined to be 0.000012 mg/kg or 12 parts per trillion (ppt) (the background concentration determined for this area). This cleanup concentration for dioxins and furans is well below the 10^{-6} risk threshold for the adolescent recreational user scenario which equates to 0.00027 mg/kg or 270 ppt.

With regard to the limited contaminants detected in groundwater and surface water, the EE/CA concluded that past deposition had contaminated soils which were the source of contaminants in ground and surface water such that remediation of soils would eliminate the risk

from those pathways, or at least reduce those risks to acceptable levels. Therefore, the cleanup objectives are focused on eliminating the risk from exposure to soils and the potential for further migration, and no cleanup levels for groundwater or surface water are required. Post-removal surface water and groundwater will be monitored to ensure that the removal action objectives as stated in Section I of this Action Memorandum are met.

7. Project schedule

The project schedule for the LSCA will be set forth in the EPA Statement of Work for this removal action. The construction phase of this project is currently scheduled for August 2010 through September 2010.

B. Estimated Costs

The projected costs to implement this non-time-critical removal action are estimated at \$1.5 million (see Table D5 of the EE/CA).

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Should the proposed action be delayed or not taken:

- Contamination may continue to adversely affect human health and the environment at concentrations exceeding CERCLA risk-based levels.
- Hazardous substances present at the Site will remain as a continuous source to Little Squalicum Creek.
- Remedial action for the Oeser Superfund Site may not be completed.

VII. OUTSTANDING POLICY ISSUES

Clean Water Act (CWA) Sections 401 and 404 have been identified as ARARs for the LSCA. These ARARs restrict the disturbance of wetlands. Several possible wetlands have been identified at the LSCA which may be disturbed by removal action activities. A wetlands delineation will be conducted by EPA as part of the removal design process. The wetlands delineation will enable EPA to determine which wetlands at the LSCA may be impacted by removal activities and whether mitigation measures in compliance with CWA Sections 401 and 404 may be necessary.

VIII. COMMUNITY INVOLVEMENT

The EE/CA was available for public review and comment from March 18 through April 19, 2010. Notice of this comment period was published in The Bellingham Herald at the start of the 30-day public comment period. Notice of the comment period, public meeting, and a summary of the proposed EE/CA alternatives were described in a Little Squalicum Creek Fact Sheet (March 2010) that was mailed to approximately 772 addresses. Announcements were also placed on EPA's website and the City of Bellingham's website. The City of Bellingham posted

project updates on their website and issued a press release regarding the availability of the Draft EE/CA for public review.

EPA held a public meeting in the Bellingham City Council Chamber on March 31, 2010. The meeting was attended by approximately 108 people. Public comments were recorded by a court reporter and the City of Bellingham videotaped the meeting for later viewing on the City's public television station and website.

EPA received 71 comment letters and comment forms during the public comment period, and 18 individuals provided spoken comments at the public meeting. Original public comment documents and the transcript from the public meeting are provided in the administrative record. Responses to all significant comments are provided in the Responsiveness Summary (Attachment C). As a result of comments received on the EE/CA and preferred alternative, EPA has changed the preferred alternative from EE/CA Alternative 3 to a combination of Alternatives 4, 5, and 2 which provides at least as much protectiveness, mitigates for the loss of wetlands, and will be more consistent with the reasonably anticipated future land use (i.e., recreational) and the City's Master Plans for greater use of the LSCA as a public park and recreation area.

An Administrative Record was prepared for this action. The Administrative Record was available at EPA, and copies of key documents were made available at the Bellingham Central Library information repository, and on the EPA web site for the Oeser Superfund Site.

During preparation of the EE/CA, EPA had several meetings with key stakeholders including the City of Bellingham, Whatcom County and the Oeser Company. Ecology, the City and the Oeser Company reviewed and provided comments on the proposed cleanup levels for the removal action. EPA also participated in stakeholder meetings conducted by the City of Bellingham during the development of the City's Master Plan for Little Squalicum Park.


IX. ENFORCEMENT

See separate confidential enforcement addendum.

X. RECOMMENDATION

This decision document represents the selected removal action for the LSCA, located within the boundaries of the Oeser Superfund Site, Bellingham, Washington, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the LSCA.

Conditions at the LSCA meet the NCP Section 300.415(b)(2) criteria for a removal and I recommend your approval of the proposed removal action. None of the removal project costs come from the Regional Removal allowance. Please indicate your approval or disapproval below.

Approve: 

Date: 7/2/2010

Disapprove: _____

Date: _____